The following is a complete listing of all claims in the application, with an indication of the status of each:

Listing of claims:

1 (Currently amended). A method to diagnose equipment failures using an integrated approach of case-based reasoning and reliability analysis, comprising the steps of:

maintaining a case base database for the equipment;

receiving an equipment problem description from a user;

for each component in the equipment, calculating failure probability based on at least one of historical failure data ~~and/or~~ and published failure data of the components;

for each component, calculating probability of matching problem description assuming that a component fails, using case based reasoning;

for each component, combining the calculated probabilities to compute an overall failure probability given said at least one of ~~the~~ historical failure data and ~~data and/or~~ published failure data, and said problem description; and

composing a list of component recommendations ~~by ranking components~~ ranked by ~~their~~ overall failure probabilities computed for each component, and retrieving corresponding past solutions from ~~a~~ said case base database.

2 (Currently amended). The method of claim 1, further comprising the step of producing a single list of suggested failed components based on at least one of historical failure data ~~and/or~~ and published failure data as observed by said user of said equipment, and said problem description received from said user.

3 (Currently amended). The method of claim 2, further comprising the step of producing a list of probabilities of failure corresponding to said single list of suggested failed components, with said list of probabilities estimated from at least one of historical failure data and/or and published failure data as observed by said user of said equipment, and said problem description received from said user.

4 (Previously submitted). The method of claim 1, wherein the step of combining probabilities to compute said overall failure probability for each component uses an equipment hierarchy such that said overall failure probability for each component is estimated in a hierarchical manner, calculated from data for the equipment at hand, if there is adequate data, otherwise, from data from an equipment group one level up in the hierarchy, and repeating the process until adequate data is found.

5 (Previously submitted). The method of claim 1, wherein the step of combining probabilities to compute said overall failure probability for each component uses an equipment hierarchy such that historical cases are retrieved in a hierarchical manner, from data for the equipment at hand, if there is adequate data, otherwise, from data from an equipment group one level up in the hierarchy, and repeating the process until adequate data is found.

6 (Currently amended). A decision support system to diagnose equipment failures using an integrated approach of case-based reasoning and reliability analysis, comprising:

    a case base maintenance management system database for the equipment;

    a decision support system database;

    a decision support system client for receiving an equipment problem description from a user;

a decision support system server receiving input from the decision support system client and accessing said case base maintenance management system database and said decision support system database, said decision support system server including

a real-time decision support system engine for calculating failure probability for each component in the equipment, based on at least one of historical failure data ~~and/or~~ and published failure data of each of the components, and for calculating a probability of matching said equipment problem description for each component, assuming that a component fails, using case based reasoning, and for each component, combining said calculated probability of matching said equipment problem description for each component to compute an overall failure probability for each component given said at least one of the historical failure data ~~and/or~~ and published failure data of each of the components and said equipment problem description and composing a list of component recommendations ~~by ranking components~~ ranked by ~~their~~ overall failure probabilities computed for each component, and retrieving corresponding past solutions from the case base maintenance management system database; and

a case base update processor for copying closed failure transaction records from the case base maintenance management systems database, and extracting information from these transaction records to obtain attributes required by said real-time decision support system engine, and indexing each closed failure transaction record by a failed component identification and a number of occurrence of failure of that particular component.

7 (Currently amended). The decision support system of claim 6, wherein said decision support system server produces a single list of suggested failed components based on at least one of said historical failure data ~~and/or~~ and published failure data of

each of the components as observed by said user of said equipment, and said problem description received from said user.

8 (Currently amended). The decision support system of claim 7, wherein said decision support system server produces a list of probabilities of failure corresponding to said single list of suggested failed components, with said list of probabilities estimated from at least one of published historical failure data and/or and published failure data of each of the components as observed by said user of said equipment, and said problem description received from said user.

9 (Previously submitted). The decision support system of claim 6, wherein said decision support system server combines said probability of matching said equipment problem description for each component to compute said overall failure probability for each component using an equipment hierarchy such that said overall failure probability for each component is estimated in a hierarchical manner, calculated from data for said equipment at hand, if there is adequate data, otherwise, from data from an equipment group one level up in the hierarchy, and repeats the process until adequate data is found.

10 (Previously submitted). The decision support system of claim 6, wherein the decision support system server combines said probability of matching said equipment problem description for each of the components to compute said overall failure probability for each component using an equipment hierarchy such that historical cases are retrieved in a hierarchical manner, from data for the equipment at hand, if there is adequate data, otherwise, from data from an equipment group one level up in the hierarchy, and repeats the process until adequate data is found.